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ABSTRACT

The National Assessment of Educational Progress (NAEP) survey of reading achievement is assessed, its objectives are discussed, and recommendations for future testing are made. It appears that a great deal has been learned about the nation's levels of reading achievment from the four NAEP reading assessments conducted from 1970 to 1984. NAEP objectives were designed to provide content validity, and were intended to change over the years to reflect current educational practices. However, the current focus on phonics instruction was not reflected in the recent, increasingly global objectives. The debate surrounding the hierarchical nature of reading skills are discussed. Three recommendations are made regarding future testing: (1) more complete information is needed about the kinds of tasks that 9-, 13-, and 17-year-olds can and cannot do; (2) knowledge and skills underlying reading performance should be measured; and (3) conclusions about preferred reading instruction should not be made without further data collection. Appendices include score reporting categories in 1970-71, 1974-75, 1979-80, and 1983-84; seven sample test items; and lists of reading objectives for each year of testing. Current categories of reading objectives are: comprehension of what is read, extension of comprehension, managing the reading experience, and placing a value upon reading. (GDC)

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The National Assessment of Reading: Past and Future Directions

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The National Assessment of Reading: Past and Future Directions

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The purposes of this paper are to assess the National Assessment of Educational Progress's (NAEP) survey of reading achievement, and to offer some recommendations for its agenda in the future. The paper consists of three parts. In Part 1, some of the key results from the four national assessments of reading are described. Part 2 contains a description of NAEP's objectives for its reading assessments over that same time period, and discusses some assumptions that NAEP has made. In Part 3, recommendations are made for ways in which NAEP might revise its future assessments.

NAEP's Reading Results, 1970-84

After four national assessments of reading achievement by NAEP, several trends in reading achievement have emerged. Among them are the following:

(1) The reading achievement of the nation's 9-, 13-, and 17-year olds has increased from 1971 to 1984 (see Table 1). Gains for minority students have been particularly large, although the gap between their reading achievement and the national level continues to be great.

(2) The students who have made the most gains are those who were born in 1965. Black children in this cohort have made the greatest improvement of all, although in 1984, Black 17-year olds were reading at the same level as White 13-year olds.

(3) Of the three categories of reading skills that NAEP assesses (i.e., literal comprehension, inferential comprehension, and reference skills), gains within each age group have been

greatest for reference skills (see Table 2). Reference skill exercises are designed to measure students' ability to find and use resource materials. Based on the exercises NAEP has released, those assessing reference skills appear to require the least amount of reading of the three categories.

(4) In spite of continued improvements in the reading achievement of all three age groups across the four assessments, the actual achievement level of many of the nation's students appears to fall below that required for meeting the demands of grade appropriate reading materials.

(5) Variables such as level of parental education, amount of reading material in the home, extent of television watching, and amount of homework done are all related to students' reading achievement.

Overall, it appears that we have learned a great deal about the nation's levels of reading achievement from NAEP's assessments. In this regard, NAEP "works". To assess how well it works and how it might be improved, however, some additional questions must be asked: What were NAEP's goals in its assessment of reading achievement? Have these goals been met?

NAEP's Objectives and Assumptions, 1970-1984

From its inception, NAEP has consisted of a set of objectives. The purpose of these objectives has been to provide NAEP with content validity, the only kind of validity with which it is concerned. NAEP's goal is that each of its exercises measure "some important bit of knowledge or some important skill that reflects one or more of the objectives" (Womer, 1970, pg. 9). Thus, NAEP's content validity is established when "it 'makes sense' to an informed reader who sees together an objective and an exercise designed to measure that objective" (Womer, pg. 9).

NAEP's intention is that its objectives reflect the current goals and practices in the subject area being assessed. As a result, NAEP is a dynamic rather than a static assessment. From its beginning, NAEP expected that its objectives might change from one assessment to the next, and objectives have been reviewed, and when necessary revised, before each new assessment.

A listing of NAEP's objectives for its four assessments of reading is contained in Appendix A. As can be seen from looking at these objectives, changes have indeed occurred, although it is a change in number more than kind that is most apparent. For example, NAEP used 137 objectives to guide its exercise development in the first reading assessment, whereas only 13 were used in the most recent one. Thus, one of the ways that NAEP's conception of the goals and practices in reading has changed has been to move toward more global categories of knowledge and skills.

In looking at changes in the content of the objectives from year to year, many of the changes that occurred seem to mirror the shift in reading theory and research from a focus on "product" to one on "process". For example, in the 1970-71 assessment, one category of objectives was concerned with assessing students' ability to "read phrases, clauses, and sentences". In the 1979-80 objectives, this has been changed to "comprehends propositional relationships".

Despite NAEP's move toward more global and process-oriented objectives, a general consensus seems to have existed from one

assessment to the next about those aspects of reading that are essential to measure. Central to the goals and practices of reading, according to NAEP's objectives, has been students' ability to arrive at different levels and kinds of understanding and response to different levels and kinds of text.

Interestingly, what is not apparent from looking at NAEP's reading objectives throughout the years are the changes that have occurred in reading instruction during this same time period. For example, since NAEP began, an increased emphasis in reading instruction has been placed on phonics as a means for improving students' reading ability (e.g., see Chall, 1983a). However, none of NAEP's changes in reading objectives seem to reflect this change in practice. It even appears that NAEP has made a move away from assessing the skills and knowledge that would be most directly affected by phonics instruction in its more recent objectives. Thus, NAEP's objectives may be better reflections of prevailing views about reading than they are of the goals and practices in reading instruction.

Another important feature of NAEP's assessment of reading emerges when we compare its objectives for assessment with what it seems to assess. For example, Appendix B contains the categories of exercises NAEP has used to report the reading results from each assessment. Recalling that the purpose of the objectives is to provide NAEP with content validity, it is interesting how little correspondence there seems to be between each assessment's objectives and the categories that NAEP has used to analyze and report the results.

From the reading exercises that have been released (e.g., see Reports No. 02-R-20 and 11-RL-25), it is apparent that NAEP did directly tie exercises to objectives in at least two of its assessments (i.e., 1970-71 and 1978-79). However, in it summaries of its results, NAEP has always seemed to opt for categories that differ from those described by the objectives.

Before turning to some recommendations for ways in which NAEP's reading assessment can be made more useful for practitioners, researchers, and decision-makers, one more general characteristic of NAEP needs to be described: the theory of reading and reading development that underlie the assessment.

Consistent with classic as well as current approaches (e.g., see Samuels & Kamil, 1984; Singer & Ruddell, 1985), NAEP is based on the view that reading consists of both lower level skills (e.g., word identification, knowledge of word meanings, sentence understanding, etc.) and higher level skills (e.g., inference making, drawing conclusions, etc.). Thus, NAEP includes in its assessment of reading a wide variety of exercises designed to assess how well students perform on these skills. In addition, NAEP assumes that as reading ability develops, there is an increase in the need to be proficient in higher level skills. Again, this assumption is consistent with established views on reading development (e.g., see Chall, 1983b), and is reflected by NAEP's use of increasingly challenging reading materials and exercises as the age of the students being assessed increases.

In interpreting its results, NAEP goes on to make one further assumption: that when students fail to comprehend challenging reading materials, this failure stems from a lack of proficiency in higher level skills rather than from any deficiencies in lower level ones. This last assumption is an important one for two reasons: first, because it has been the basis for NAEP's conclusion that although students' proficiency in lower level skills has been improving, increased instructional efforts need to be directed toward improving higher level ones; and second, because of all the assumptions that NAEP makes, it may be this one that has the weakest theoretical and empirical support.

In terms of theory, most models view reading as a process that always requires lower level and high level skills, regardless of the level of reading development (e.g., see Chall, 1983b) or the difficulty of the material being read (e.g., see Pearson, 1984). As reading ability develops, or the level of difficulty of reading materials decreases, lower level skills such as word identification do seem to require less and less effort on the reader's part to complete. However, even when lower level skills are performed by the reader without any conscious effort (i.e., they are automatic), lower level skills still remain a critical component of reading.

NAEP's asessment of reading, on the other hand, tends to assume that students' proficiency in lower level skills can be assessed with relatively simple reading tasks, whereas level of proficiency in higher level skills is what is being indicated by their performance on

more challenging reading tasks. This assumption is probably best illustrated by the scale that NAEP has used to summarize the results from the most recent assessment.

NAEP's new scale consists of five levels of reading proficiency, ranging from rudimentary to advanced. Such a scale allows NAEP to make comparisons across age groups and across assessments, as well as to describe the kinds of reading tasks that students at different ages are able to do.

So, for example, in reporting the results of the 1983-84 assessment, NAEP concluded that while 95% of the nation's 17-year olds have "the ability to understand specific or sequentially related information" (i.e., they have reached a "basic" level of reading proficiency), less than 40% of these students are able to "find, understand, summarize, and explain relatively complicated information" (i.e., they have not reached an "adept" level of proficiency). What NAEP does not say, but appears to be the case from the "benchmark exercises" that NAEP provides to anchor its proficiency scale, is that 95% of 17-year olds were able to deal with materials written at a 4th - 5th grade level, while less than 40% were able to understand materials written at a 7th grade level.

Why the majority of 17-year olds in 1983-84 had difficulty with 7th grade materials is not clear from NAEP's results, however. It may be, as NAEP suggests, that they do lack the "adept skills and strategies" that materials at this level of difficulty require. If this is the case, then NAEP would seem to be on target in its call for

an increased emphasis on higher level skills for these students. It may also be, though, that these students are experiencing difficulty in performing at a "basic" level when the level of difficulty of materials is increased from 4th to 7th grade. If this is the case, then increased opportunities for instruction in lower level skills would seem to be essential for these students as well.

Interestingly, data collected in the past by NAEP itself helps to further clarify this issue. For example, in the 1970-71 assessment, NAEP used "reading themes" to analyze and summarize the reading results, a theme being a category that "defines a set of existing and potential exercises that relate to each other in content or in some central idea that is meaningful to the subject area of concern" (NAEP, 1974a, pg. 6). The eight reading themes used by NAEP (the 1970-71 assessment) are shown in Appendix B.

NAEP conceived of these themes as hierarchical in nature, such that those at the beginning of the list were viewed as lower level skills (e.g., "Understanding words and word relationships"), while those toward the end were viewed as higher level (e.g., "Reading and drawing inferences").

Although the results from the 1970-71 assessment were summarized in terms of "group median effects" (i.e., the median difference of a group from a national performance level), it is possible to calculate students' percent correct on exercises within each theme from other information that NAEP has released (i.e., NAEP, 1973). Table 3 contains students' percent correct on three of the themes: Theme

1--Understanding words and word relationships; Theme 5--Gleaning significant facts from passages; and Theme 7--Reading and drawing inferences.

As can be seen from this table, students at all age levels in 1970-71 tended to be no more successful on lower level skills than they were on higher level ones.

Comparable analyses from later assessments are not possible, since NAEP no longer used "themes" to analyze and report results after 1970-71. However, from the exercises released after the 1979-80 assessment (NAEP, 1981c), it is possible to calculate students' percent correct on categories of exercises that seem somewhat comparable--i.e., exercises designed to assess the following three objectives: Comprehends words and lexical relationships; Comprehends propositional relationships; and Comprehends textual relationships. These results are shown in Table 4.

Again, as indicated by the results on the released exercises, little difference seemed to exist in students' performance in the 1979-80 assessment on those exercises designed to assess lower level skills and those designed to measure higher level ones. And yet, it was after this assessment that NAEP's report on the results concluded the following:

> ...The downward trends in reading of 13- and 17-year-olds, particularly in the area of inferential comprehension, are signaling deteriorating resources and instruction for those higher-order intellectual abilities that go beyond basic skills. If these trends continue into the 1980's then it seems plausible that we are failing to give these students anything but basic skills (NAEP, 1981a, pg. 48).

It must be pointed out that this conclusion by NAEP was based, not on the data contained in Table 4, but on the changes that occurred in students' performance from 1971-1980 on exercises classified as "inferential" ones (i.e., see Table 2). Notice, in addition, though, that these trends seem to have changed again between 1980 and 1984, suggesting that perhaps reading instruction may have changed in the direction recommended by NAEP, or that NAEP may have misinterpreted those earlier changes.

One of the goals for NAEP, from its beginnings, was to stimulate debate and further research (Womer, 1970). One of the purposes of this paper, in describing NAEP's results, objectives, and interpretation of the reading data collected over the last four assessments, has been to suggest that many aspects of the assessment itself point to the need for both.

The purpose of the final section of this paper is to look toward future assessments, however, rather than evaluating the past. Its premise is that NAEP can revise its next assessments of reading in ways that would place debates and research on interpretations on more solid ground.

Recommendations for Future Assessments in Reading

> The "Idea" of National Assessment was to develop a plan for gathering direct information about knowledges, about understanding, about skills - information not currently available... If National Assessment provides information that can be helpful in making wiser educational decisions, it will have achieved its goal, its "Idea". National Assessment is the "Idea" that accurate information about what boys and girls are learning is an essential ingredient for wise decision-making in education. Information alone does not change education; people who use information wisely can change education. (pg. 2-3).

The following recommendations are offered in the spirit of the "Idea" of NAEP, as described above by Frank Womer in 1970. The recommendations fall into three sets: Set 1 contains some suggestions for changes in the information NAEP provides about the data it currently collects; Set 2 contains some suggestions for additional data that NAEP should collect; and Set 3 contains some suggestions for changes in the way that NAEP has come to define itself.

> Recommendation 1: NAEP needs to provide more complete information about the kinds of reading tasks that the nation's 9-, 13-, and 17-year old students can and cannot do.

The first set of recommendations is in response to NAEP's addition, in the 1983-84 assessment, of a reading proficiency scale. The scale's purpose is to allow direct comparisons to be made across age groups, and from one assessment to the next. In these ways, it is an important change in NAEP, since it greatly facilitates our ability to identify age differences, as well as changes within age groups across time. In other ways, however, the scale has the potential to move us farther away from the "Idea" of NAEP than we have ever been before. Whereas in previous assessments, we needed to consider changes in percent correct on a known number of exercises that were categorized by types, now we are faced with considering changes in scores that range from 0 to 500 on an unknown number of exercises measuring what we are not sure. To aid us in interpreting these new scores, NAEP has provided us with one or two exercises at five different levels on the scale, ranging from 150 to 350. And, although these "benchmark" exercises are of some help, NAEP still needs to provide us with more information that will allow us to distinguish between descriptions of

students' reading ability and NAEP's interpretations of its results of how well students read.

1.A. Better anchors need to be provided for NAEP's reading proficiency scale.

Since the validity of NAEP rests solely on its content (rather than how well it predicts success at something else, for example), NAEP needs to provide us with more information about each of the levels of "reading skills and strategies" that it uses to report its results. In its summary report (NAEP, 1985) NAEP tells us what percentage of each age group are able to accomplish reading tasks at each level. One rather simple addition would be to provide us with an example of a reading exercise given to each age group from each level. For example, NAEP found that in terms of rudimentary skills and strategies, "across the four assessments, virtually all of the 13- and 17-year olds and most of the 9-year olds were able to accomplish such reading tasks" (NAEP, 1985, pg. 17). And yet, the exercises that NAEP provides us with as anchors at this level of proficiency are exercises that were given only at age 9. If NAEP could also provide examples of exercises that "virtually all of the 13- and 17- year olds" could do, we would have a much better idea of what a rudimentary level of reading skills and strategies means, and what NAEP's results tell us about the nation's 13- and 17-year olds.

NAEP also suggests that "it is the relationship between the complexity of the passage and the way in which the reader needs to go about finding the answer to a particular question that shapes the demands of a reading task" (NAEP, 1985, pg. 14). And yet, from the descriptions and examples provided for each proficiency level, it is difficult to ascertain the nature of that relationship. Sample passages clearly increase in complexity as proficiency level increases; however, the change in questions does not appear to be as straightforward, or to conform as well to NAEP's description of what each level of proficiency requires. Perhaps, if possible, NAEP could describe each level of proficiency in terms of not only what students are able to do, but also what they can not. Appendix C gives an example of a passage from the 1978-79 assessment that illustrates how this could be done. Whereas 70% of 17-year olds were able to correctly answer the first exercise (requiring recognition of a paraphrase from a relatively complex passage), only 31% of the students understood the purpose of the entire passage (exercise 2). In terms of NAEP's levels of proficiency, exercise 1 seems to require "intermediate reading skills and strategies," while exercise 2 seems to require an "adept" level.

1.B. NAEP needs to provide more information about the number and kinds of exercises that are used to assess each level of proficiency.

In addition to providing better anchors for its scale, NAEP needs to tell us more about the exercises that are used as the basis for the scale. For example, although NAEP tells us that few items fell at the

ends of the continuum of the 500 point scale, it would also be helpful to know how many items fall at other points along the scale, and how many items are actually good discriminators between proficiency levels.

In addition, NAEP has always included three kinds of exercises in its reading assessments: literal comprehension, inferential comprehension, and reference skills. Although NAEP states that it was primarily the literal and inferential questions that were used as a basis for the new proficiency scale, it needs to be more specific about the numbers of each kind of exercise that were included. In the past, improvements in students' reading ability seem to have stemmed largely from improvements in performance on the small number of reference skill items that NAEP has included (see Table 2). Understanding the results on changes in average proficiency levels across assessments requires that we know whether this remains the case.

> Recommendation 2: NAEP needs to collect information that tells us not only about the kinds of reading tasks that students can and cannot do, but also about the kinds of knowledge and skills that underlie their performances.

The previous set of recommendations was concerned with improving NAEP's description of the kinds of information it currently collects.

The purpose of this set of recommendations, however, is to describe some ways in which NAEP could collect some additional information that would improve the usefulness of the reading assessments.

Students' proficiency in reading at all levels of development is affected not only by how well they deal with the "message" aspects of what they have read, but also by their ability to deal with the "medium" itself (Adams, 1980; Chall, 1983b). Currently, however, NAEP makes no attempt to distinguish between students' skills in each of these aspects of reading. As a consequence, although NAEP provides us with some information about the kinds of reading tasks that students can and cannot do, we have little or no information about the sources of their successes and failures.

NAEP has, in the past, collected information that allowed it to report on students' lower level and higher level skills (see section on "NAEP's Objectives and Assumptions"). Several factors make the argument for reinstituting this practice a strong one.

First, as discussed earlier, NAEP has always assumed that students' failure on exercises designed to assess complex comprehension strategies and skills stems from a lack of proficiency in higher level skills. However, as has already been pointed out, this is not always the case. As reading materials increase in difficulty, so do vocabulary load and sentence length (e.g., see Chall, 1984). As a result, reading materials that require higher level skills for understanding also place increased demand on lower level skills. By assessing students' proficiency in both the lower and

higher level skills required by reading materials along a continuum of difficulty, NAEP would be providing essential information about the sources of students' successes and failures.

Second, information about the status of students' lower level and high level skills could be invaluable for educational decision making. As NAEP (1985) has pointed out, increased attention to higher level reading skills has already begun in schools across this country. Other changes in reading instruction (such as the increased emphasis on phonics mentioned earlier, the increased difficulty of basal readers, etc.) have occurred as well (see Chall, 1986). With NAEP providing us with better information about the kinds of knowledge and skills underlying students' reading performances, we would all be in a much better position to evaluate the need for particular instructional approaches.

Finally, NAEP has long been encouraged to find ways in which its results can become more useful to states and local school districts (e.g., see the 1976 report by the U.S. Comptroller General). NAEP could provide more detailed geographical breakdowns for the information it currently collects, allowing comparisons to be made between a state and the nation, or between states. However, there is reason to question how useful this kind of information would be. NAEP's reading proficiency score is so general that it is difficult to say what practical significance there would be in knowing that students in a particular state score 5 points above or below the national average.

If, however, NAEP were to collect information that provided a clearer picture of students' reading knowledge and skills, states and local school districts would be in a better position to use any information released to them. In addition, trends found in data already collected at local and state levels could more easily be compared to those found at the national level.

If NAEP is to provide better information about students' reading ability, decisions will have to be made about the kinds of data to collect. Currently, from what NAEP tells us, it appears that it already has several exercises designed to assess higher level skills. NAEP could use performance on these items to construct a scale of higher level reading skills, similar to the more global scale that it already uses. It is unclear, however, how many exercises NAEP has that assess lower level skills at each age level. As a result, the following suggestions are directed toward describing ways that lower level skills could be more directly assessed.

2.A. NAEP needs to provide information about the level of knowledge that 9-, 13-, and 17-year old students have about word meanings.

Several reasons exist for why NAEP should include a scale of vocabulary knowledge as part of its reading assessment. Knowledge of word meanings is a major factor in reading comprehension (Davis, 1968), as well as one of the best single predictors of success in school (Carroll, 1971; Terman, 1918). Furthermore, vocabulary tests provide us with a good estimate of the extent of students' background knowledge, or "schemata", a factor that plays an important role in

students' success in understanding and learning from what they have read (see Anderson & Pearson, 1984). Finally, vocabulary knowledge is a component of reading that virtually everyone seems to agree is important. Disagreements abound about how vocabulary is best taught (e.g., see McKeown & Curtis, 1987), but knowledge about word meanings has long been a well acknowledged part of the goals and practices in reading.

In the past, NAEP has included vocabulary exercises in its reading assessments, presenting words both in a context and out. In Appendix D, sample exercises from the 1979-80 assessment are shown. Although each exercise was preceded by a reading passage, the sentence in which each word appeared is a part of each exercise.

Since NAEP already includes vocabulary exercises as part of its reading assessment, why should it include a separate scale? Vocabulary knowledge (like reference skills) differs from other aspects of reading that NAEP assesses. With the exception of some words that have multiple meanings, students' performance on these exercises does not depend on their ability to comprehend texts. Students' performance on exercises that require text comprehension, however, can depend on the knowledge of word meanings that they bring to the reading task. Because vocabulary exercises are more likely to be "passage independent" than comprehension exercises, a vocabulary scale would inform us about the extent of knowledge students bring with them to reading tasks.

A separate scale for vocabulary knowledge would also allow us to track vocabulary development, both across and within age groups, from one assessment to the next. Comparisons among levels of vocabulary knowledge, proficiency in higher level skills, and NAEP's more general scale would also aid us in understanding why students are able or unable to do certain kinds of reading tasks.

In designing ways to describe levels of students' vocabulary knowledge, NAEP should consult sources such as word frequency lists (e.g., Carroll, Davies, & Richman, 1971) and graded vocabulary lists (e.g., Dale & O'Rourke, 1981). This would ensure that the vocabulary exercises measure knowledge of word meanings that are important for students at differing age levels to know. Since the exercises need only present a sentence context (see Appendix D), NAEP would no longer need to restrict the vocabulary it assesses to those words that are contained in the passages it uses.

Finally, NAEP should consider the benefits of assessing students' word knowledge through listening as well as reading. A reading vocabulary task requires that students know the meanings of words. However, it also requires that students have the ability to identify those words in print, a demand not made by a listening task. By assessing students' vocabulary knowledge in both modes, comparison between results on each would allow NAEP to provide important information about students' strengths and needs in reading (see Carroll, 1977).

2.B. NAEP needs to provide information about the efficiency with which students are able to deal with text.

Vocabulary assessment, particularly when done through both the reading and listening modes, can tell us much about students' ability to deal with texts at varying levels of difficulty. In addition to students' knowledge about word meanings, however, a large body of research also strongly supports the need to understand how efficiently students are able to deal with the texts they must read.

Reading efficiency refers to the ease with which students are able to identify accurately the words in a text (e.g., see Lesgold & Curtis, 1981; Perfetti, 1985). When students are efficient at reading, their efforts are directed at the meaning (or "message") of a text. When students are not efficient at reading, however, dealing with word identification (or the "medium" of a text) requires effort. As a consequence, they are less able to deal with the meaning of a text.

Reading efficiency is often estimated by measuring the rate at which students are able to read and understand what they have read. For example, college students read silently in the vicinity of 250-300 wpm, whereas the nightly news is read to us at about 175 wpm (Sticht, 1984; Sticht & James, 1984).

In NAEP's first assessment of reading (1970-71), information was collected on students' reading rate and comprehension (see NAEP, 1972). Students were given a passage to read that was judged appropriate for their grade level in school. Following the passage, students were asked five multiple choice questions that required word for word recall of details from the passage. Reading rate was recorded for each student.

Table 5 contains a summary of the results from that part of the assessment. The average reading rate for 9-year olds was 117 wpm; for 13-year olds, 173 wpm; and for 17-year olds, 195 wpm. NAEP reported the results in 100 wpm intervals. Based on NAEP's results, as well as other research (see Sticht, 1984 for a summary), students in the right hand column of Table 5 should be considered slower than average readers.

What is so interesting about these results is how the percentage of students who read efficiently (i.e., they are not slow readers and they are able to remember what they have read) declines across the age groups. Whereas 51% of the 9-year olds were efficient readers, only 38% of the 13-year olds and 31% of the 17-year olds were.

NAEP needs to reassess the efficiency with which students at each of these age levels deal with texts at varying levels of difficulty. If students' reading efficiency has improved over the last decade and a half, then that is important information for us to know. If reading efficiency has not changed, or declined, then we will have a much better idea about the sources of students' difficulties in dealing with the texts they must read.

> Recommendation 3: Until NAEP collects information about the ways in which reading is taught, it needs to avoid drawing implications about the ways that reading should be taught.

One of NAEP's goals has always been to collect information that will aid in making educational decisions. As Womer reminded us in 1970: "Information alone does not change education: people who use

information wisely can change education" (pg.3). Over the past two assessments, however, NAEP has increasingly succumbed to joining in the decision making process. In considering this move, NAEP needs also to consider some dangers that would seem to accompany it.

First, as Jeanne Chall (1986) has noted, it is very difficult to say how instruction should be changed without first knowing what kind of instruction is already occurring. As Chall further notes, it can also be very risky. In NAEP's case, the difficulty and risk seem particularly great, as interpretation of its results remains an open issue (e.g., see Chall, 1986; Curtis & Glaser, 1983; Venezky, 1977). If the decison is made that NAEP's mission is to include using its results to make instructional recommendations, then two actions will be required: first, NAEP will need to resolve this issue of interpretation, and second, NAEP will need to collect information about school and classroom characteristics. Until these changes have occurred, however, it would seem that NAEP can no more say how 17-year olds should be taught reading than it can say how well they should be reading.

The second danger that NAEP faces lies in the way that assumptions about how reading should be taught can affect decisions about what should be measured. NAEP's assessment of reading is supposed to be guided by the current goals and practices in reading. If, however, it becomes tied to certain hypotheses about what the future goals and practices in reading should be, it could begin to provide information that will not be useful, or even worse, erroneous.

Table 3

1970-71: Percent Correct on Exercises in Three Selected Themes

	9-year olds	13-year olds	17-year olds
Theme 1:			
Words & Word Relationships	75% (n=13)	65% (n=19)	68% (n=14)
Theme 5:			
Gleaning Significant Facts	59% (n=25)	70% (n=49)	82% (n=42)
Theme 7:			
Reading and Drawing Inferences	74% (n=37)	60% (n=45)	67% (n=38)

Table 2

1971-1984: Changes in Percent Correct by Type of Question

	Literal	Inferential	Reference
9-year olds:			
1971-1975	1.0	0.9	2.3
1975-1980	2.8	2.5	2.6
1980-1984	-0.6	-1.1	2.6
Overall	3.2	2.3	7.5
13-year olds:			
1971-1975	0.7	-0.8	-1.7
1975-1980	0.9	0.2	2.6
1980-1984	-0.9	0.9	1.6
Overall	0.7	0.3	2.5
17-year olds:			
1971-1975	0.5	-0.9	0.6
1975-1980	-0.7	-1.2	0.2
1980-1984	-0.7	1.3	2.9
Overall	-0.9	-0.8	3.7

Table 1

1971-1984: Changes in Students' Scores Over Assessments

	Proficiency Scores	Percent Correct
9-year olds:		
1971-1975	2.4	1.3
1975-1980	3.9	2.6
1980-1984	-0.3	0.2
Overall	6.0	4.1
13-year olds:		
1971-1975	0.9	-0.1
1975-1980	2.6	0.9
1980-1984	0.4	0.4
Overall	3.9	1.2
17-year olds:		
1971-1975	0.2	0.0
1975-1980	0.0	-0.8
1980-1984	3.7	1.1
Overall	3.9	0.3

Note: Proficiency scores are based on a scale of 0 to 500 (NAEP, 1985)

Table 4

1979-80: Percent Correct on Released Exercises for Objective II

	9-year olds	13-year olds	17-year olds
Words	61% (n=17)	77% (n=24)	75% (n=15)
Propositions	57% (n=15)	77% (n=20)	80% (n=16)
Text	55% (n=14)	70% (n=21)	75% (n=21)

Table 5

1970-71: Results from Assessment of Rate and Comprehension

	100 wpm or faster	Slower than 100 wpm
9-year olds:		
80-100% recall	51%	22%
0-60% recall	13%	14%
13-year olds:		
80-100% recall	38%	2%
0-60% recall	53%	8%

	200 wpm or faster	Slower than 200 wpm
17-year olds:		
80-100% recall	31%	36%
0-60% recall	15%	18%

Appendix A

Reading Objectives for 1971-1984 Assessments

1970-71 Assessment: Reading Objectives

I. Comprehend what is read
   - A. Read individual words (12 subobjectives listed)
   - B. Read phrases, clauses, and sentences (12)
   - C. Read paragraphs, passages, and longer works (7)

II. Analyze what is read
   - A. Be able to trace sequences (3)
   - B. Perceive the structure and organization of the work (6)
   - C. See the techniques by which the author has created effects (8)

III. Use what is read
   - A. Remember significant parts of what is read (3)
   - B. Follow written directions (2)
   - C. Obtain information efficiently (20)

IV. Reason logically from what is read
   - A. Draw appropriate inferences (7)
   - B. Arrive at a general principle after examining a series of details (3)
   - C. Reason from a general principle to specific instances (3)

V. Make judgments concerning what is read
   - A. Relate what is read to things other than specific material being read (7)
   - B. Find and use appropriate criteria in making judgments (27)

VI. Have attitudes about and an interest in reading
   - A. Depth of interest in reading (3)
   - B. Motives for reading (7)
   - C. Quantitative measures of reading interest (7)

Note: Based on information contained in Reading Objectives (NAEP, 1970).

1974-75 Assessment: Reading Objectives

I. Demonstrate behavior conducive to reading
   - A. Demonstrate values related to reading (4 subobjectives)
   - B. Assess the readability of materials (2)
   - C. Demonstrate knowledge of their own reading ability (3)

II. Demonstrate word identification skills
   - A. Know the letters of the alphabet
   - B. Apply knowledge of sound symbol relationships
   - C. Apply structural analysis techniques
   - D. Possess basic sight vocabulary
   - E. Use context for word identification

III. Possess skills for reading comprehension
   - A. Utilize written language conventions (2)
   - B. Demonstrate literal understanding (3)
   - C. Demonstrate inferential understanding (9)

IV. Use a variety of approaches in gathering information
   - A. Demonstrate flexibility in adapting reading rate to purpose and nature of materials (3)
   - B. Possess reading study skills (2)
   - C. Use reference materials efficiently (3)

Note: Based on information contained in Reading Objectives: Second Assessment (NAEP, 1974).

1979-80 Assessment: Reading and Literature Objectives

I. Values reading and literature
   - A. Values the benefits of reading for the individual (3 subobjectives)
   - B. Appreciates the cultural role of written discourse as a way of transmitting, sustaining and changing the values of a society

II. Comprehends written works
   - A. Comprehends words and lexical relationships
   - B. Comprehends propositional relationships
   - C. Comprehends textual relationships

III. Responds to written works in interpretative and evaluative ways
   - A. Extends understanding of written works through interpretation (4)
   - B. Evaluates written works

IV. Applies study skills in reading
   - A. Obtains information from nonprose reading facilitators
   - B. Uses the various parts of a book
   - C. Obtains information from materials commonly found in libraries or resource centers
   - D. Uses various study techniques

Note: Based on information contained in Reading and Literature Objectives (NAEP, 1980).

1983-84 Assessment: Reading Objectives

I. Comprehends what is read
   A. Comprehends various types of written materials
   B. Comprehends materials read for a particular purpose

II. Extends comprehension
   A. Analyzes what has been read
   B. Interprets what has been read
   C. Evaluates what has been read

III. Manages the reading experience
   A. Uses the structure and organization of the text
   B. Uses readers' aids
   C. Shows flexibility in approach to reading
   D. Selects reading material appropriate to the purpose

IV. Values reading
   A. Values reading as a source of enjoyment
   B. Values reading to expand understanding and fulfill personal goals
   C. Values reading as a means of acquiring knowledge and learning new skills
   D. Values the cultural role of written language

Note: Based on information contained in Reading Objectives: 1983-84 Assessment (NAEP, 1984).

Appendix B

Categories Used to Report Reading Results

1970-71:
- Understanding words and word relationships
- Reading and visual aids
- Written directions
- Reference materials
- Gleaning significant facts from passages
- Reading for main ideas and organization
- Reading and drawing inferences
- Critical reading

1974-75:
- Literal comprehension
- Inferential comprehension
- Reference skills

1979-80:
- Literal comprehension
- Inferential comprehension
- Reference skills

1983-84:
- Rudimentary skills and strategies
- Basic skills and strategies
- Intermediate skills and strategies
- Adept skills and strategies
- Advanced skills and strategies

Appendix C

Examples of Reading Exercises for 17-year olds (from NAEP, 1981c)

Competition is healthy

Last year the Supreme Court presented doctors, lawyers, dentists, and other professionals with a right that most of them did not want - the right to advertise their services to the public. Since then the professions, especially law and dentistry, have been acrimoniously divided over the question of advertising.

Older lawyers and dentists with established practices have spurned the idea of hawking their services, as though they say, they were selling another dog food or deodorant. But young men, trying to find a market for their services, have seized the opportunity to go to the public. Established members of the profession accuse them of misleading the public and undermining professional standards.

It is easy to sympathize with someone who has built a practice the hard way and sees it threatened by an interloper who values the hard sell above professional dignity. But the fact remains that most of the professions could benefit from an injection of old-fashioned competition. In a world where fees are never publicized and the quality of work is hard to judge, the public has no way to tell whether it is getting its money's worth.

If established practitioners think the public is being misled by irresponsible advertising, there is always a step they can take. They can advertise themselves, both individually and through professional groups. They can tell the public what they think good practice is and what it should cost. They can describe the services they perform and what qualifications they have.

If some professionals abuse the privilege of advertising, there are plenty of laws on the books to bring them into line. But it is time for established practitioners to realize that the public needs to know more than a little bronze plate on the door can tell it.

According to the editorial, what can older professionals do if they think the public is being misled by advertising?

--- They can request that the Supreme Court reverse its decision.

--- They can wait until the public tires of advertising by professionals.

--- They can advertise their own qualifications and services.

--- They can expel from the profession anyone who advertises.

--- I don't know.

What is the main purpose of the editorial?

--- To explain the new law which allows advertising by professionals.

--- To show the problems younger lawyers, dentists, and doctors have getting started.

--- To encourage people to see the need for advertising professional fees and services

--- To warn people about the dangers of advertising by professionals

--- I don't know.

Note: 70% of 17-year olds in 1979-80 answered exercise #1 correctly; 31% answered exercise #2 correctly.

Appendix D

Examples of Vocabulary Exercises (from NAEP, 1981c)

The editorial says:

It is easy to sympathize with someone who has built a practice the hard way and sees it threatened by an interloper who values the hard sell above professional dignity.

What does the word interloper mean in this sentence from the editorial?

17-year olds: 55% correct

--- A person who does not believe in competition

--- A person who intrudes upon others

--- A person who misleads the public through advertising

--- A person who is an established member of a profession

The article says:

There is the same empathy at the end of a marathon swim.

What does the word empathy mean in this sentence from the article?

17-year olds: 45% correct

--- The joy of victory

--- The pain in one's body

--- A sharing of another's feelings

--- An unforgettable experience

--- I don't know

The article says:

> They might ask a family from the "old country" to let them board with the family for a while.

What does the phrase board with mean in this sentence from the article?

9-year olds: 33% correct; 13-year olds: 80% correct

--- Visit and work with

--- Build a room with

--- Pay to live with

--- Learn English with

The package directions say:

> Top with wet plate, invert the plate and mold together, remove mold

What does the word invert mean in this sentence from the package?

9-year olds: 26% correct; 13-year olds: 64% correct

--- Turn upside down

--- Remove

--- Break apart

--- Heat up

The article says:

> In 1703 he built the city of St. Petersburg on the Gulf of Finland, hoping to open a new avenue to the West.

What does the word avenue mean in this sentence from the article?

13-year olds: 65% correct; 17-year olds: 76% correct

--- Route

--- Street

--- Territory

--- Trade

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